

This listing of claims will replace all prior versions, and listings, of claims in the application:

??

Listing of Claims

69. ~~us. 1-68 Cancelled~~ (withdrawn) The immunogenic peptide of claim 1, wherein said immunogenic peptide binds to an antibody specifically immunoreactive with a peptide selected from the group consisting of SEQ ID NOS: 1-10 and conservative variations thereof.

70. (currently amended) An isolated, ~~antigenically reactive~~ antigenic hepatitis A virus (HAV) peptide, ~~the antigenically reactive peptide comprising at least one antigenic determinant from the group of peptides consisting of SEQ ID NOS:39 or 42-48 and conservative variations thereof and an amino acid sequence of a portion of an HAV protein selected from the group consisting of the VP3 protein of HAV corresponding to amino acids 246 to 491; the VP1 protein of HAV corresponding to amino acids 492 to 791; the P2A protein of HAV corresponding to amino acids 792 to 980; the P2B protein of HAV corresponding to amino acids 981 to 1087; the P2C protein of HAV corresponding to amino acids 1088 to 1422; the P3A protein of HAV corresponding to amino acids 1423 to 1496; the P3B protein of HAV corresponding to amino acids 1497 to 1519; the P3C protein of HAV corresponding to amino acids 1520 to 1738; and conservative variations thereof, wherein the antigenic peptide has an amino acid sequence selected from the group consisting of SEQ ID NOS:11-72, and wherein a portion from at least one of SEQ ID NOS:38-42 is excluded~~ wherein the antigenically reactive peptide binds to an antibody specifically antigenically reactive with a peptide selected from the group consisting of SEQ ID NOS: 38, 42-46 and conservative variations thereof.

71. (currently amended) The ~~antigenically reactive~~ antigenic peptide of claim 70, wherein the amino acid sequence includes individual substitutions, deletions or additions which alter, add or delete a single amino acid or a small percentage of amino acids, ~~and wherein the antigenically reactive antigenic peptide binds to an antibody specifically antigenically reactive with a peptide selected from the group consisting of SEQ ID NOS: 38 and 42-46.~~

72. (canceled)

73. (withdrawn) The immunogenic peptide of Claim 70 wherein the immunogenic peptide has the amino acid sequence of SEQ ID NO: 47.

74. (withdrawn) A method of detecting the presence of antibodies against HAV in mammalian serum, said method comprising:

Y 3 (a) contacting one or more isolated, immunogenic HAV peptides with antibodies from mammalian serum, wherein the immunogenic peptides comprise an amino acid sequence selected from the group consisting of SEQ ID NOS: 1-72 and conservative variations thereof, and

(b) detecting the formation of complexes between the immunogenic peptides and the antibodies.

75. (withdrawn) The method of Claim 74, wherein the immunogenic peptide has the amino acid sequence of SEQ ID NO: 47 and conservative variations thereof.

76. (withdrawn) A method of differentiating between vaccine-induced immunity and natural HAV immunity, the method comprising:

(a) contacting one or more isolated, nonstructural, immunogenic HAV peptides with antibodies from mammalian serum, the nonstructural immunogenic peptides comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 39-72 and conservative variations thereof; and

(b) detecting the formation of complexes between the immunogenic peptide and the antibodies, wherein the presence of peptide-antibody complexes indicates natural HAV immunity.

43
77. (currently amended) An isolated, ~~antigenically reactive~~ antigenic HAV peptide, the ~~antigenically reactive peptide~~ comprising at least one antigenic determinant from the group of peptides consisting of SEQ ID NOS: 39 or 42-48, and an amino acid sequence of a portion of an HAV protein selected from the group consisting of the VP3 protein of HAV corresponding to amino acids 246 to 491; the VP1 protein of HAV corresponding to amino acids 492 to 791; the P2A protein of HAV corresponding to amino acids 792 to 980; the P2B protein of HAV corresponding to amino acids 981 to 1087; the P2C protein of HAV corresponding to amino acids 1088 to 1422; the P3A protein of HAV corresponding to amino acids 1423 to 1496; the P3B protein of HAV corresponding to amino acids 1497 to 1519; the P3C protein of HAV corresponding to amino acids 1520 to 1738;, wherein the antigenically reactive antigenic peptide has an amino acid sequence selected from the group consisting of SEQ ID NOS: 11-72, and wherein ~~lacks a portion from at least one of sequence selected from the group consisting of SEQ ID NOS: 38-432 is excluded;~~ and wherein the antigenically reactive peptide binds to an antibody specifically antigenically reactive with a peptide selected from the group consisting of SEQ ID NOS: 38, 42-46 and conservative variations thereof.

78. (currently amended) The ~~antigenically reactive~~ antigenic HAV peptide of claim 77, wherein the peptide ~~contains no portion of sequence selected from the group consisting of~~ excludes SEQ ID NOS: 38-42.

79. (withdrawn) An isolated, antigenically reactive HAV peptide, the antigenically reactive peptide comprising an amino acid sequence of only a portion of at least two HAV proteins selected from the group consisting of the VP3 protein of HAV corresponding to amino acids 246 to 491; the VP1 protein of HAV corresponding to amino acids 492 to 791; the P2A protein of HAV corresponding to amino acids 792 to 980; the P2B protein of HAV corresponding to amino acids 981 to 1087; the P2C protein of HAV corresponding to amino acids 1088 to 1422; the P3A protein of HAV corresponding to amino acids 1423 to 1496; the P3B protein of HAV corresponding to amino acids 1497 to 1519; and the P3C protein of HAV corresponding to

amino acids 1520 to 1738, wherein the antigenically reactive peptide binds to an antibody specifically antigenically reactive with a peptide selected from the group consisting of SEQ ID NOS: 38, 42 – 46 and conservative variations thereof, wherein at least one HAV protein selected is the P2A protein and wherein the antigenically reactive peptide is not a full-length HAV polypeptide.

80. (withdrawn) The antigenically reactive HAV peptide of claim 79, wherein the amino acid sequence of the HAV peptide consists of a portion of any HAV protein selected from the group consisting of the VP3 protein, the VP1, the P2A protein, the P2B protein, the P2C protein, the P3A protein of HAV, the P3B and the P3C protein, wherein the conservative variations thereof consist of individual substitutions, deletions or additions which alter, add or delete a single amino acid or a small percentage of amino acids, and wherein the sequence of the antigenically reactive HAV peptide is not contained in any HAV polypeptide.

81. (withdrawn) An isolated, antigenically reactive HAV peptide, the antigenically reactive peptide comprising an amino acid sequence of a portion of the P2A protein of HAV corresponding to amino acids 792 to 980 and to a portion of an HAV protein selected from the group consisting of the VP3 protein of HAV corresponding to amino acids 246 to 491; the VP1 protein of HAV corresponding to amino acids 492 to 791; the P2A protein of HAV corresponding to amino acids 792 to 980; the P2B protein of HAV corresponding to amino acids 981 to 1087; the P2C protein of HAV corresponding to amino acids 1088 to 1422; the P3A protein of HAV corresponding to amino acids 1423 to 1496; the P3B protein of HAV corresponding to amino acids 1497 to 1519; the P3C protein of HAV corresponding to amino acids 1520 to 1738; and conservative variations thereof, wherein the antigenically reactive HAV peptide is not identical to a HAV polypeptide, wherein the amino acid sequence of at least a first portion of P2A sequence and a second portion of P2A sequence are switched in order with one another relative to the amino acid sequence of wild-type HAV P2 protein and wherein the antigenically reactive peptide binds to an antibody specifically antigenically reactive with a

peptide selected from the group consisting of SEQ ID NOS: 38, 42-46 and conservative variations thereof.

82. (withdrawn) The antigenically reactive HAV peptide of Claim 81, wherein the conservative variations thereof consist of individual substitutions, deletions or additions which alter, add or delete a single amino acid or a small percentage of amino acids.

83. (new) An isolated, antigenic HAV peptide consisting of the amino acid sequence identified as SEQ ID NO:42.

84. (new) An isolated, antigenic HAV peptide consisting of the amino acid sequence identified as SEQ ID NO:43.

85. (new) An isolated, antigenic HAV peptide consisting of the amino acid sequence identified as SEQ ID NO:44.

86. (new) An isolated, antigenic HAV peptide consisting of the amino acid sequence identified as SEQ ID NO:45.

87. (new) An isolated, antigenic HAV peptide consisting of the amino acid sequence identified as SEQ ID NO:46.

88. (new) An isolated, antigenic HAV peptide consisting of the amino acid sequence identified as SEQ ID NO:47.

89. (new) An isolated, antigenic HAV peptide consisting of the amino acid sequence identified as SEQ ID NO:48.